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TWO CHANGES TO THE IMP/HOST PROTOCOL TO IMPROVE USER/NETWORK COMMUNICATIONS*

1. A Reminder

When a Host receives an IMP-Going-Down message from its IMP (see page 3-15 of BBN Report 1822, Specifications for the Interconnection of a Host and an IMP), the Host should forward the information included in the IMP-Going-Down message to its users from the network and its local users of the network. Further, we suggest that the Host keep this information around after the IMP has gone down, in order to tell local users who are attempting to use the network.

In the next two sections of the RFC, we describe modifications to the IMP/Host protocol which will allow the IMPs to distribute the same sort of information about Hosts which are down.

2. Expansion of the Host-Going-Down Message

The type 2, Host-Going-Down, message described on page 3-11 of BBN Report 1822 has not previously allowed for any provision by the Host for additional information such as why, when, and for how long the Host is going down. The following describes a modification to the Host-Going-Down message which permits the Host to supply this additional information.

In a type 2, Host-Going-Down message, bits 17-28 give the time of the Host's coming back up, bit-coded as follows:

bits 17-19: the day of the week the Host is coming back up. Monday is day 0 and Sunday is day 6.

bits 20-24: the hour of the day, from hour 0 to hour 23, that the Host is coming back up.

bits 25-28: the five minute interval, from 0 to 11, in the hour that the Host is coming back up.

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*Please file this RFC with your copy of BBN Report 1822 until that report is updated.

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All three of the above are to be specified in Universal Time (i.e., G.M.T.). The Host may indicate that it will be coming back up more than a week away by setting bits 17-28 all to ones. Setting all bits 17-27 to one and bit 28 to zero means it is unknown when the Host is coming back up.

Bits 29-32 of the Host-Going-Down message should be used by the Host to specify the reason it is going down. These bits are coded as follows:

Value	Meaning
0-4	Reserved for IMP use (see Section 3 below)
5	Scheduled P.M.
6	Scheduled Hardware Work
7	Scheduled Software Work
8	Emergency Restart
9	Power Outage
10	Software Breakpoint
11	Hardware Failure
12-15	Currently Unused

It is assumed that as the time for the Host to go down approaches, the Host itself will send warning messages to its network users. Just before going down, the Host should send the Host-Going-Down message to its IMP. The IMP will store this message and return it to the source Host along with Destination (Host) Dead messages. The IMP will try to preserve this message over IMP reloads where appropriate. The NCC will be able to update manually the stored copy of this message in response to a phone call from the Host site in the event the Host is going to be down longer than it said or if it didn't have time to say before going down.

3. Addition of the Dead Host Status Message

The type 7, Destination Dead, message described on page 3-16 of BBN Report 1822, does not allow for providing the reason for the Destination Host's being "dead". An additional IMP to Host message is therefore being added which provides status information on the dead Host. This message is type 6, Dead Host Status, and will provide the additional information as follows:

Bits 17-28 have the same meanings as bits 17-28 in the Host-Going-Down message described in Section 2 above.

Bits 29-32 have the following meanings:

Value	Meaning

0 The destination Host is not communicating with the network -- the destination IMP has no information about the cause. Note that this is the message most likely to occur if the destination IMP has gone down since the destination Host went down.

1 The destination Host is not communicating with the network -- it took its ready-line down without saying why.

2 The destination Host is not communicating with the network -- the Host was tardy in taking traffic from the network and the network had to declare the Host down.

3 The destination Host does not exist to the knowledge of the NCC.

4 Currently unused.

5 The destination Host is down for scheduled P.M.

6 The destination Host is down for scheduled hardware work.

7 The destination Host is down for scheduled software work.

8 The destination Host is down for emergency restart.

9 The destination Host is down because of power outage.

10 The destination Host is stopped at a software breakpoint.

11 The destination Host is down because of a hardware failure.

12-15 Currently Unused.

When the value of this 4-bit field is 0,1,2, or 3, bits 17-28 will have the "unknown" indication.

Bit 1 in this message will always be set to zero and Hosts receiving this message should discard without reporting an error type 6 messages with bit 1 set to 1. This will allow the later addition of similar status information on dead destination IMPs.

The Dead Host Status message will be returned to the source Host shortly (immediately, if possible) after each Destinaton Host Dead message. The Destination Host Dead message applies to a specific message-id (link) although the information contained in the Destination Host Dead message should probaly be reported to all users connected to the dead Host. The Dead Host Status message does not apply to a specific message-id (link) and all users connected to the dead Host should be notified of the information contained in the Dead Host Status message.

The modificátions mentioned in Section 2 and 3 above will be put into the network very soon, and we urge the Hosts to implement the code necessary to take advantage of these modifications as soon as possible. This modification is backward compatible with the exception(!) that Hosts which have not done the implementation can recieve a type 6 message which they do not know how to handle and will presumably log as an error.